

## ARGUMENTS

Reconsideration of the application is requested.

Claims 1 - 16 remain in the application. No claims are amended.

The question of patentability appears to touch exclusively on the question of the claimed "proportionality." Each of the independent claims requires that the set point acceleration be proportional to the velocity of the rail vehicle.

Acceleration, of course, is an increase or a decrease in the velocity. Here, the rail vehicle is decelerated with a deceleration whose value is proportional to the value of the velocity. The closed-loop control system sets the actual acceleration to the set point acceleration. The term "proportional" lies at the heart of the obviousness issue.

According to Webster's Third Int'l Dictionary, the word "proportional" means, *inter alia*:

- a. being in proportion : corresponding in size, degree, or intensity.
- b. having the same or a constant ratio.

In mathematical terms, two quantities A and B are considered proportional or directly proportional if either of the two is multiplied by a constant and the two values equal one another. The constant is called the proportionality factor. When

the proportionality factor is 1, A and B are equal. The expression may be written as follows:

$$A = kB \quad y = kx$$

This brings us to the art rejection, in which claims 1-3, 5, 6, 8-10, 15 and 16 have been rejected as being anticipated over the newly cited reference Throne-Booth (US 3,519,805) under 35 U.S.C. § 102(b). We respectfully traverse.

The reference teaching regulates the braking process by including the velocity (v) and also the distance (d) to the stopping location as its driving variables. That is the acceleration is continuously adapted to the instantaneous distance to the desired stop. Further, the adaptation of the acceleration is effected in discrete steps.

Reference is had to col. 4, line 63, to col. 5, line 18. There, the acceleration may be changed, if needed, from -1.0 to -1.1 in a single step. That is, the acceleration in Throne-Booth is not driven to a setpoint acceleration that is proportional to the velocity of the vehicle. In fact, the deceleration is not even continuous.

Further reference is had to col. 4, line 3, where the deceleration signal of the prior art teaching is shown as  $\frac{K_1 v^2}{2(d-d_0)}$  which utilizes two variables (v and d) and, quite importantly, utilizes the square of the velocity  $v^2$ .

We respectfully submit that all of the claims which require the set point acceleration to be proportional to the velocity to be patentable over the prior art reference Throne-Booth.

The closed-loop control according to the claims is characterized by its simplicity and its comfort. There is no need in applicants' system to also determine, and take into account, the desired stopping location.

The secondary reference Anderson (US 4,270,716) is acknowledged. Anderson touches on issues of the dependent claims. The secondary reference does not touch on – or cure – the shortcomings of the primary reference Throne-Booth. We respectfully submit that all of the claims are patentable over the combined teachings of Throne-Booth and Anderson.

In summary, reconsideration and the allowance of claims 1 - 16 are solicited.

Respectfully submitted,

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